

Advancing Health Services through Systems Modeling Research

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| Organization: | The Agency for Healthcare Research and Quality and the National Science Foundation |
| Interagency Agreement: | 12-689F-12 |
| Project Period: | July 2012 – June 2016 |
| AHRQ Funding Amount: | \$1,000,000 |

Summary: Over the past several decades, there has been increasing interest in applying industrial and systems engineering tools and techniques to improve the health care delivery system. Recently, several organizations, including the Institute of Medicine and the National Academy of Engineering, have made specific recommendations to increase the use of these tools. Despite this, scant progress has been made in achieving optimal health care delivery through the application of industrial and systems engineering tools and knowledge.

In recognition of this shortcoming, the Agency for Healthcare Research and Quality (AHRQ) and the National Science Foundation (NSF) convened a [workshop](#) in September 2009 for health services researchers and industrial and systems engineers. These experts were asked to explore critical intersecting areas of research, with a focus on the supportive role of health information technology (IT). The objectives of the workshop were to: 1) articulate a vision for an ideal health care delivery system; 2) determine why current efforts to apply industrial and systems engineering knowledge to health care have not resulted in meaningful change; and 3) propose a research and action agenda that will enable industrial and systems engineering to contribute substantially to the realization of the ideal system.

The two agencies subsequently developed a [joint grant solicitation](#) to address the research challenges identified and agenda set in the workshop, foster collaboration between health services researchers and industrial and systems engineers, and fund research projects that address systems modeling in health services research with an emphasis on the supportive role of health IT.

Project Objective:

- Fund research projects that advance and address the research challenges and agenda set in the aforementioned NSF/AHRQ workshop. **(Ongoing)**

2012 Activities: Seven total projects were funded through this interagency agreement. The following three projects were funded by the AHRQ Health IT Portfolio:

- Researchers from Wayne State University, Indiana University, and the University of Michigan-Ann Arbor will develop a scientific foundation for new business rules and operation sciences useful for the patient-centered medical home model.
- A research team from the University of Massachusetts Amherst will develop and evaluate health IT interfaces that can guide health care providers in real-time as they complete the complex and error-prone process of blood transfusion.
- Researchers from the University of Wisconsin-Madison and the University of Kentucky Research Foundation will develop an analytical framework for modeling the rapid response process in

acute care delivery to improve the efficacy of rapid-response operations and patient safety.

Preliminary Impact and Findings: There are no impacts or findings to date.

Target Population: Adults, Men*, Pediatric*, Women*

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to improve health care decisionmaking through the use of integrated data and knowledge management.

Business Goal: Knowledge Creation

** This target population is one of AHRQ's priority populations.*